

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Harley Kent Heinrich et al.

Application Number: 10/662,950

Examiner: Mr. Scott D. Au

Filed: 09/15/2003

Art Unit 2612

For: Method and System for Storage and Recovery of Vital Information on Radio
Frequency Transponders

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

An initial Information Disclosure Statement was filed with an RCE request on July 30, 2007. The enclosed IDS Document Listing (Form PTO/SB/08b), provides a list of non-patent literature documents which may be relevant to the subject application.

REMARKS

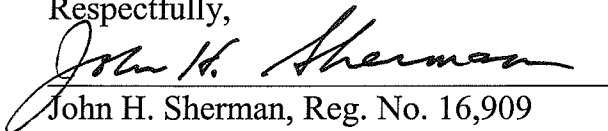
As provided in 37 CFR 1.97(g) and (h), the filing of this statement should not be construed as a representation that a search has been made, or that the information cited in the statement is, or is considered to be, material to patentability as defined in 37 CFR 1.56(b). Moreover, this statement does not constitute an admission by the Applicant or the Applicant's attorney that the information provided herein is necessarily prior art to the Applicant's invention.

Applicant respectfully requests under 37 CFR 1.97(b)(4) that the art cited in this Information Disclosure Statement (IDS) be considered by the Examiner, and made of record.

Applicant encloses herewith an Exhibit C (Enclosure (2) of 35 pages) which discusses claims of U.S. Patent 6,812,841 which has an inventor in common with the present application, and which was placed of record herein by an Information Disclosure Statement filed October 7, 2006. The U.S. patents referred to in Exhibit C were listed in an IDS filed July 30, 2007 with an RCE request. Non-patent Literature documents referred to in Exhibit C are listed on the enclosed form PTO/SB/08b, and copies of listed documents NPL2-NPL7 (Enclosure (3) of 36 pages) are being submitted herewith. A copy of non patent literature document NPL1 will be submitted as promptly as possible.

Please charge any underpayments related to this paper or credit any excess to Deposit Account No. 09-0471.

Respectfully,


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Enclosures: (1) IDS Document Listing Form PTO/SB/08b - One Sheet
(2) Exhibit E Discussing USP 6,812,841 - 35 Pages
(3) Copies of Non-Patent Literature Documents NPL2-NPL7 - 36 Pages

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet

One

of

One**Complete if Known**

Application Number

10/662,950

Filing Date

09/15/2003

First Named Inventor

Harley Kent Heinrich

Art Unit

2612

Examiner Name

Mr. Scott D. Au

Attorney Docket Number

YO896-0213R5**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	NPL1	FINKENZELLER, KLAUS "The RFID Handbook", 1999, page 172	
	NPL2	KANG, SUNG-MO & LEBLEBICI, YUSUF "CMOS Digital Integrated Circuits, Analysis and Design", 1999, pages 442-443	
	NPL3	HALDUN HAZNEDAR "Digital Microelectronics", 1991, pages 444-446	
	NPL4	CHATTERJEE, P.K., et al. "A Survey of High-Density Dynamic RAM Cell Concepts," ED-26 IEEE Transactions on Electron Devices, June 1979, pages 827-839	
	NPL5	TAUB, HERBERT & SCHILLING, DONALD "Digital Integrated Electronics", 1977, page 46	
	NPL6	DEMASSA, THOMAS A. "Electrical and Electronic Devices, Circuits, and Instruments", 1989, page 52	
	NPL7	ALI MAZIDI, MUHAMMAD & GILLISPIE-MAZIDI, JANICE, "Assembly Language, Design and Interfacing", 1998, page 238	

Examiner
SignatureDate
Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Alien's Preliminary Invalidity Contentions
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Exhibit C: Invalidity Charts for U.S. Patent No. 6,812,841

As illustrated by the following charts, the asserted claims of U.S. Patent No. 6,812,841 ("the '841 patent") are invalid because all of the limitations of each claim are disclosed and/or taught in the identified prior art references.¹

Claim 1

Alien contends that claim 1 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least U.S. Patent No. 4,724,427 ("Carroll '427"), U.S. Patent No. 5,410,315 ("Huber '315"), U.S. Patent No. 5,287,112 ("Schuermann '112"), and U.S. Patent No. 5,053,774 ("Schuermann '774"), as shown in the invalidity chart below. Thus, claim 1 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart below, claim 1 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with U.S. Patent No. 5,365,551 ("Snodgrass '551") and/or U.S. Patent No. 6,942,155 ("Stewart '155").

To the extent Alien may rely on a combination of references to show obviousness, the combination would be nothing more than a combination of familiar elements according to known methods to yield predictable results. A person having ordinary skill in the art (PHOSITA) would have been motivated to make any of the aforementioned combinations in light of the interrelated teachings of the prior art, the demands known to the design community and/or present in the RFID marketplace, and the background knowledge of the PHOSITA. For example, prior to the relevant date of the '841 patent, the RFID marketplace was interested in passive RFID tags with memories that could store and maintain transponder data for a specific length of time following a lapse in the transponder's system power due to lapse in receipt of an interrogating RF signal. *See, e.g.*, Carroll '427 col. 9, lns. 50-52 (EEPROM use in transponder is "preferred"); Huber '315, col. 9, lns. 25-28 (accord). These market demands would have prompted a PHOSITA to combine the elements in the way claimed in claim 1.

<u>Claim Element</u>	<u>Prior Art</u>
1. An RFID transponder, comprising:	The claim preamble is descriptive of use without adding any structure or substance to claim, and is thus non-limiting. To extent this preamble description is required to be found in the prior art, it is found in each of the references identified for this claim, as is clear from the citations below.

¹ Citations provided for each of references are meant to be exemplary and not exhaustive. Alien reserves its rights to point to other and/or additional portions of each reference as disclosing a claim limitation at issue.

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<p>[a] an RF front end adapted to receive an interrogating RF signal;</p>	<p>Carroll '427 discloses an RF front end to receive an interrogating RF signal. E.g., col. 11, lns. 33-48.</p> <p>Huber '315 discloses an RF front end to receive an interrogating RF signal. E.g., col. 14, lns. 26-29.</p> <p>Schuermann '112 discloses an RF front end to receive an interrogating RF signal. E.g., col. 8, lns. 26-45.</p> <p>Schuermann '774 discloses an RF front end that receives an interrogating RF signal. E.g., claim 1, col. 13, lns. 19-24.</p> <p>Snodgrass '551 discloses a transponder with an RF front end to receive an interrogating RF signal. E.g., Abstract; col. 10, lns. 23-24.</p> <p>Stewart '155 discloses an RFID tag that receives an interrogating RF signal. E.g., col. 1, lns. 16-29.</p>
<p>[b] an analog circuit coupled to said RF front end and adapted to recover analog signals from said received interrogating RF signal,</p>	<p>This circuitry is well known to anyone skilled in the art. In virtually all passive RFID systems, the RF waves are received by the tag antenna through an analog circuit and are demodulated into the incoming RF information. E.g., "The modulated HF [or UHF] signal from the reader is reconstructed in the HF [or UHF] interface by demodulation to create a digital serial data stream for reprocessing in the address and security logic." Klaus Finkenzeller, <i>The RFID Handbook</i>, at p. 172 (1999).</p> <p>Carroll '427 discloses an analog circuit coupled to an RF front end to recover signals. E.g., col. 11, lns. 49-52.</p> <p>Huber '315 discloses an analog circuit coupled to an RF front end to recover signals. E.g., col. 15, lns. 12-13.</p> <p>Schuermann '112 discloses an analog circuit coupled to the RF front end to recover signals. E.g., col. 5, lns. 23-25.</p> <p>Schuermann '774 discloses an analog circuit coupled to the RF front end to recover signals. E.g., fig. 2.</p> <p>Snodgrass '551 discloses an analog circuit that recovers signals from the RF front end. E.g., col. 9, lns. 1-20.</p> <p>Stewart '155 discloses wireless RF tags that are interrogated by</p>

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	<p>sending information from reader. E.g., col. 1, lns. 17-49.</p>
<p>[c] said analog circuit providing state information defining a desired state of said RFID transponder corresponding to said analog signals;</p>	<p>Carroll '427 discloses an analog circuit providing state information corresponding to the analog signals. E.g., col. 11, lns. 41-45.</p> <p>Huber '315 discloses an analog circuit providing state information corresponding to the analog signals. E.g., col. 15, lns. 18-21.</p> <p>Schuermann '112 discloses an analog circuit providing state information corresponding to the analog signals. E.g., col. 5, lns. 43-46.</p> <p>Schuermann '774 discloses an analog circuit providing responder state information corresponding to the analog interrogator signals. E.g., col. 11, lns. 7-17, 23-38.</p> <p>Snodgrass '551 discloses a circuit providing state information defining the state of the transponder that corresponds to the transmitted analog signals. E.g., col. 6, ln. 29-col. 7, ln. 3 and Figure 11.</p>
<p>[d] a digital state machine coupled to said analog circuit and adapted to execute at least one command in accordance with said state information;</p>	<p>A digital state machine coupled to the analog RF front end is inherent in passive RFID tags with addressable memory functions. "Transponders with a memory function contain RAM, ROM, EEPROM, or FRAM and a HF [or UHF] interface to provide the power supply and permit communication with the reader. The main characteristic of this family of transponders is the realization of address and security logic on a chip using a state machine." Klaus Finkenzeller, <i>The RFID Handbook</i>, at p. 172 (1999).</p> <p>Carroll '427 discloses a state machine in digital form to execute at least one command. E.g., col. 12, lns. 13-16.</p> <p>Huber '315 discloses a digital state machine for executing commands in accordance with the state information received. E.g., "...and thereupon activates the programming logic 232 if a programming command has been previously received by command decoder 230." Col. 9, lns. 21-23.</p> <p>Schuermann '112 discloses such a digital state machine coupled to an analog circuit. E.g., col. 10, lns. 38-40, whereby the digital</p>

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	<p>signal switches the Q factor that is a part of the analog circuit.</p> <p>Schuermann '774 discloses a digital state machine coupled to the analog circuit for the purpose of executing commands received from the interrogator. E.g., col. 11, lns. 7-17, 23-38.</p> <p>Snodgrass '551 specifies a system in which the transponder utilizes a digital state machine to execute at least one command in accordance with state information. E.g., col. 24, lns. 16-18.</p>
<p>[e] a power capacitor coupled to said analog circuit and deriving a voltage rectified from said interrogating RF signal to charge said power capacitor,</p>	<p>Passive RFID tags derive a voltage rectified from the interrogating RF signal to power the chip circuitry. "Passive transponders, <i>i.e.</i> transponders that do not have their own power supply, are supplied with energy via the HF [or UHF] field of the reader. To achieve this, the HF [or UHF] interface draws current from the transponder antenna, which is rectified and supplied to the chip as a regulated voltage supply." Klaus Finkenzeller, <i>The RFID Handbook</i>, at p. 172 (1999).</p> <p>Carroll '427 discloses a circuit with inherent capacitance that accumulates the rectified voltage from the interrogating RF signal. E.g., col. 7, ln. 63-col. 8, ln. 27.</p> <p>Huber '315 discloses an energy accumulator for storing voltage derived from the interrogating RF signal. E.g., col. 15, lns. 14-17. It specifies a capacitor charged by the rectified voltage, which is the most fundamental and obvious type of such voltage accumulator circuit. E.g., col. 6, lns. 6-12.</p> <p>Schuermann '112 discloses a power capacitor coupled to the RF front end and deriving a voltage rectified from the interrogating RF signal. E.g., "wherein said energy storage device is a storage capacitor." Col. 8, lns. 51-52.</p> <p>Schuermann '774 discloses an energy accumulator coupled to the RF front end and deriving a voltage rectified from the interrogating RF signal. E.g., "...an energy accumulator for storing the energy contained in said at least one interrogation signal as received by said responder unit." Col. 13, lns. 28-30, Claim 1. It specifies a capacitor as one type of such energy accumulator. E.g., col. 4, lns. 65-67.</p>
<p>[f] said power capacitor thereby providing electrical</p>	<p>Carroll '427 discloses a circuit which utilized its capacitance to power the chip's analog, logic, and memory circuits. E.g., col. 7,</p>

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<p>power for said analog circuit, said digital state machine and said memory;</p>	<p>ln. 63-col. 8, ln. 27.</p> <p>Huber '315 discloses an energy accumulator that provides electrical power for the responder unit. E.g., col. 15, lns. 14-17.</p> <p>Schuermann '112 discloses that the capacitor provides electrical power for the transponder circuits. E.g., col. 6, lns. 5-8.</p> <p>Schuermann '774 discloses that the capacitor provides electrical power for the transponder circuits. E.g., col. 5, lns. 30-36.</p>
<p>[g] and a state holding cell coupled to said digital state machine and being adapted to maintain said state information during a loss in power provided by said power capacitor due to lapse in receipt of said interrogating RF signal by said RF front end.</p>	<p>Carroll '427 discloses a cell that maintains its state information during a loss of power from the interrogating RF signal. E.g., "preferably, an EEPROM (Erasable Electrical Programmable Read Only Memory) device could be used." Col. 9, lns. 50-52.</p> <p>Huber '315 discloses the use of an energy accumulator which powers the transponder, including its memory circuit that maintains state information, after current is no longer received from the interrogating RF signal. E.g., col. 15, lns. 14-17.</p> <p>Schuermann '112 discloses the use of an EEPROM memory and a latch to maintain state information following the lapse of the interrogating RF signal. E.g., col. 7, ln. 68-col. 8, ln. 7.</p> <p>Schuermann '774 discloses the use of RAM memory, which is capable of maintaining state information for a period of time following the lapse of the interrogating RF signal. E.g., col. 11 lns. 33-38. Such memory would inherently include RAM, ROM, EEPROM, or any other basic form of memory that is maintained for a specific duration following lapse of power.</p> <p>Snodgrass '551 discloses the use of battery-powered memory able to maintain digital state information during a loss of power from the interrogating RF signal. E.g., col. 7, lns. 28-36. A PHOSITA would expect such memory to be RAM, an SRAM, or an EEPROM.</p> <p>Stewart '155 discloses the use of tenacious latches for tag or command states to persist even through short interruptions of the power supply. E.g., col. 2, lns. 9-11; col. 5, lns. 8-11. Stewart '155 further discloses tag power supplied by the receipt of an interrogating RF signal, which may be interrupted. E.g., col.1,</p>

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	Ins. 26-41; col. 2, Ins. 31-34.
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Alien further contends that claim 1, and each claim that depends therefrom, is indefinite under 35 U.S.C. § 112(2), and that it is not supported by an enabling written description (i.e., the written description is inadequate) under 35 U.S.C. § 112(1), due to the phrase "during a loss in power provided by said power capacitor due to lapse in receipt of said interrogating RF signal."

Claim 2

Alien contends that claim 2 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart for claim 1 and the chart below. Thus, claim 2 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart for claim 1 and the chart below, claim 2 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 2.

<u>Claim Element</u>	<u>Prior Art</u>
<p>2. The RFID transponder of claim 1, wherein said state holding cell further comprises an OR gate having a first input terminal operatively coupled to receive a voltage corresponding to said state information, a second input terminal coupled to a capacitor via a voltage comparator circuit having an input terminal and an output terminal, and an output terminal providing said state information to said digital state machine, said capacitor being charged by</p>	<p>A state holding cell is a memory cell. The specific memory cell claimed here is a simple version of the classical dynamic memory circuit (DRAM), which has been very well known in the art for decades. <i>See, e.g.,</i> Sung-Mo Kang, Yusuf Leblebici, <i>CMOS Digital Integrated Circuits, Analysis and Design</i>, at 442-43 (1999); Haldun Haznedar, <i>Digital Microelectronics</i>, at 444-46 (1991); P. K. Chatterjee, et al., "A Survey of High-Density Dynamic RAM Cell Concepts," ED-26 IEEE TRANSACTIONS ON ELECTRON DEVICES 827-839 (June 1979) as shown in Figure 10.44.a in Kang/Leblebici and Haznedar.</p> <p>The claimed circuit is a simplified DRAM in that only one memory bit is stored. Thus, the R/W Select line can be tied to a permanent ON state or the transistor can be replaced by a diode as it is in 841 where the POWER SIGNAL is equivalent to the Data In/Out (D) signal of the DRAM.</p> <p>The use of this rudimentary memory cell would have been inherent in and obvious from any RFID tag system that utilizes</p>

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said voltage.	addressable digital memory, including Carroll '427, Huber '315, Schuermann '774, Schuermann '112, Snodgrass '551, and Stewart '155.
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Claim 3

Alien contends that claim 3 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart for claim 1 and the chart below. Thus, claim 3 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart for claim 1 and the chart below, claim 3 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 3.

<u>Claim Element</u>	<u>Prior Art</u>
3. The RFID transponder of claim 2, further comprising a diode coupled between said first input terminal and said input terminal of said voltage comparator circuit.	<p>As explained above with respect to claim 2, the claimed circuit is a simplified version of a classical DRAM memory cell, in which case the R/W Select can be permanently tied to a potential to cause the transistor to conduct. Because no switching action is needed, a diode simply replaces the transistor of the classical DRAM cell.</p> <p>The use of this rudimentary memory cell would have been inherent in and obvious from any RFID tag system that utilizes addressable digital memory, including Carroll '427, Huber '315, Schuermann '774, Schuermann '112, Snodgrass '551, and Stewart '155.</p>

Claim 4

Alien contends that claim 4 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart for claims 1 and 3, and the chart below. Thus, claim 4 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity charts for claims 1, 3 and the chart below, claim 4 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or

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Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 4. In addition, the RFID market at and prior to the time of the invention considered it "very desirable to reduce the amount of time for accomplishing an identification transaction." '841 patent, col. 2, lns. 19-23. A PHOSITA would thus have been motivated to use fast diodes with the transponders in Carroll '427, Huber '315, Schuermann '774, Schuermann '112, Snodgrass '551, and Stewart '155.

<u>Claim Element</u>	<u>Prior Art</u>
4. The RFID transponder of claim 3, wherein said diode further comprises a Schottky diode.	It is common knowledge to a PHOSITA that a Schottky diode has less noise and a low turn on voltage making said diode the most logical choice for the diode to be used with the state holding cell. "Such metal-semiconductor diodes, called Schottky diodes, ... have advantages with respect to speed of operation." [Digital Integrated Electronics, Herbert Taub and Donald Schilling, McGraw-Hill, New York, 1977, p.46] A PHOSITA would have understood the reference to diodes in claim 3 to inherently encompass Schottky diodes.

Claim 5

Alien contends that claim 5 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart for claims 1, 3, and the chart below. Thus, claim 5 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity charts for claims 1, 3, and the chart below, claim 5 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 5. In addition, the RFID market at and prior to the time of the invention considered it desirable to make passive transponders as economical as possible, so that they could be used in a wide range of applications. *See, e.g.*, Huber '315, col. 1, lns. 62-68. A PHOSITA would thus have been motivated to use p-n diodes with the transponders in Carroll '427, Huber '315, Schuermann '774, Schuermann '112, Snodgrass '551, and/or Stewart '155.

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<u>Claim Element</u>	<u>Prior Art</u>
5. The RFID transponder of claim 3, wherein said diode further comprises a p-n junction diode.	A Schottky diode may have disadvantages in certain fabrication processes, whereby it would be obvious to a PHOSITA that a p-n junction diode, the most basic alternative type of diode, would also work in the holding cell circuit. [Electrical and Electronic Devices, Circuits, and Instruments, Thomas A. DeMassa, West Publishing, 1989, p. 52.] A PHOSITA would have understood the reference to diodes in claim 3 to inherently encompass p-n diodes.

Claim 6

Alien contends that claim 6 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Schuermann '112 and Stewart '155, as shown in the invalidity charts for claims 1, 2, and the chart below. Thus, claim 6 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity charts for claims 1, 2 and the chart below, claim 6 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Schuermann '112 and/or Stewart '155; and/or (ii) Schuermann '112 and/or Stewart '155 in combination with Carroll '427, Huber '315, Schuermann '774 and/or Snodgrass '551.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 6.

<u>Claim Element</u>	<u>Prior Art</u>
6. The RFID transponder of claim 2, further comprising a latch coupled between said first input terminal and said output terminal of said OR gate, said latch being operative to restore said voltage corresponding to said state information to said first input terminal following said temporary lapse in receipt of said interrogating RF signal.	<p>The use of a latch would be common knowledge and obvious to a PHOSITA. It is a very well-known method for holding a signal state in an event such as a temporary loss of data or power representing data. E.g., "... a latch must be used to grab the addresses.", Assembly Language, Design and Interfacing, Muhammad Ali Mazidi and Janice Gillispie Mazidi, Prentice Hall, Upper Saddle River, 1998, p. 238. A latch is the most basic circuit element for maintaining a signal state through a prolonged loss in power supply, and would be the first option for a PHOSITA seeking to accomplish that aim.</p> <p>Schuermann '112 discloses the use of an EEPROM memory, SRAMs, and latches to maintain state information following the lapse the interrogating RF signal. E.g., Col. 7, ln. 68-col. 8, ln. 7.</p>

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	<p>Stewart '155 discloses the use of tenacious latches for tag or command states to persist even through short interruptions of the power supply. E.g., col. 2, lns. 9-11; col. 5, lns. 8-11. Stewart '155 further discloses tag power supplied by the receipt of an interrogating RF signal, which may be interrupted. E.g., col.1, lns. 26-41; col. 2, lns. 31-34.</p> <p>Use of such a latch would have been obvious from any RFID tag system that utilizes addressable digital memory, including Carroll '427, Huber '315, Schuermann '774, Schuermann '112, and Snodgrass '551.</p>
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Alien further contends that claim 6 is not supported by an enabling written description (i.e., the written description is inadequate) under 35 U.S.C. § 112(1), due to the lack of specificity in the patent's description of the latch circuitry. *See* Figure 3.

Claim 7

Alien contends that claim 7 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart for claim 1 and the chart below. Thus, claim 7 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart for claim 1 and the chart below, claim 7 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 7.

<u>Claim Element</u>	<u>Prior Art</u>
7. The RFID transponder of claim 1, wherein said memory further comprises an EEPROM device.	<p>An EEPROM is a common memory device using very well known technology.</p> <p>Carroll '427 discloses a cell that maintains its state during a loss of power. E.g., "Preferably, an EEPROM (Erasable Electrical Programmable Read Only Memory) device could be used." Col. 9, lns. 50-52.</p> <p>Huber '315 discloses an EEPROM memory. "Preferably, the memory the to which the data is transferred is an electrically-</p>

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	<p>erasable programmable read only memory (EEPROM)." Col. 9, lns. 25-28</p> <p>Schuermann '112 discloses EEPROM memory to hold state information. E.g., col. 7, ln. 68-col. 8, ln. 7.</p> <p>Schuermann '774 discloses the use of RAM memory, which is capable of maintaining state information for a period of time following the lapse of the interrogating RF signal. E.g., col. 11, lns. 33-38. Such memory would inherently include RAM, ROM, EEPROM, or any other basic form of memory that is maintained for a specific duration following lapse of power.</p> <p>Snodgrass '551 discloses the use of battery-powered memory able to maintain digital state information during a loss of power from the interrogating RF signal. E.g., col. 7, lns. 28-36. A PHOSITA would inherently expect such memory to be either RAM or an EEPROM.</p>
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Claim 8

Alien contends that claim 8 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart for claim 1 and the chart below. Thus, claim 8 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart for claim 1 and the chart below, claim 8 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 8.

<u>Claim Element</u>	<u>Prior Art</u>
8. The RFID transponder of claim 1, wherein said state information defines plural operating states of said digital state machine.	Carroll '724 discloses a digital state machine that can be defined into plural operating states. E.g., fig. 9.
	Huber '315 discloses multiple operating states. E.g., Col. 8, lns. 17-22.
	Schuermann '112 discloses an RFID transponder that has plural

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	<p>operating states defined by state information. E.g., col. 9, lns. 9-34.</p> <p>Schuermann '774 discloses a digital state machine coupled to the analog circuit for the purpose of executing commands received from the interrogator, thereby permitting a plurality of states. E.g., col. 11, lns. 7-17, 23-38.</p> <p>Snodgrass '551 discloses state information utilized to define multiple states of the transponder. E.g., col. 6, lns. 40-42.</p>
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Claim 9

Alien contends that claim 9 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart below. Thus, claim 9 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart below, claim 9 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 9.

<u>Claim Element</u>	<u>Prior Art</u>
9. An RFID transponder, comprising:	Preamble descriptive of use without adding any structure or substance to claim, and thus non-limiting. To extent this preamble description is required to be found in the prior art, it is found in each of the references identified above.
[a] means for receiving an interrogating RF signal;	<p>Carroll '427 discloses an RF front end to receive an interrogating RF signal. E.g., col. 11, lns. 33-48.</p> <p>Huber '315 discloses an RF front end to receive an interrogating RF signal. E.g., col. 14, lns. 26-29.</p> <p>Schuermann '112 discloses an RF front end to receive an interrogating RF signal. E.g., col. 8, lns. 26-45.</p> <p>Schuermann '774 discloses an RF front end that receives an interrogating RF signal. E.g., claim 1, col. 13 lns. 19-24.</p>

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	<p>Snodgrass '551 discloses a transponder with an RF front end to receive an interrogating RF signal. E.g., Abstract; col. 10, lns. 23-24.</p> <p>Stewart '155 discloses an RFID tag that receives an interrogating RF signal. E.g., col. 1, lns. 16-29.</p>
<p>[b] means for recovering analog signals from said received interrogating RF signal and providing state information defining a desired state of said RFID transponder corresponding to said analog signals;</p>	<p>This circuitry is well known to anyone skilled in the art. In virtually all passive RFID systems, the RF waves are received by the tag antenna through an analog circuit and are demodulated into the incoming RF information. E.g., "The modulated HF [or UHF] signal from the reader is reconstructed in the HF [or UHF] interface by demodulation to create a digital serial data stream for reprocessing in the address and security logic." Klaus Finkenzeller, <i>The RFID Handbook</i>, at p. 172 (1999).</p> <p>Carroll '427 discloses an analog circuit providing information corresponding to the analog signals. E.g., col. 11, lns. 41-45.</p> <p>Huber '315 discloses an analog circuit providing information corresponding to the analog signals. E.g., col. 15, lns. 18-21.</p> <p>Schuermann '112 discloses an analog circuit coupled to the RF front end to recover signals. E.g., col. 5, lns. 23-25.</p> <p>Schuermann '774 discloses an analog circuit coupled to the RF front end to recover signals. E.g., fig. 2.</p> <p>Snodgrass '551 discloses an analog circuit that recovers signals from the RF front end. E.g., col. 9, lns. 1-20.</p> <p>Stewart '155 discloses wireless RF tags that are interrogated by sending information from reader. E.g., col. 1, lns. 17-49.</p>
<p>[c] means for executing at least one command in accordance with said state information;</p>	<p>The capacity for plural operating states is inherent in a digital state machine. E.g., "A state machine ... is an arrangement used for executing logic operations, which also has the capability of storing variable states." Klaus Finkenzeller, <i>The RFID Handbook</i>, at p. 174 (1999) (discussing basic RFID transponder with memory function).</p> <p>Carroll '427 discloses a state machine in digital form to execute</p>

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	<p>at least one command. E.g., col. 12, lns. 13-16.</p> <p>Huber '315 discloses a digital state machine for executing commands in accordance with the state information received. E.g., "...and thereupon activates the programming logic 232 if a programming command has been previously received by command decoder 230." Col. 9, lns. 21-23.</p> <p>Schuermann '112 discloses such a digital state machine coupled to an analog circuit. E.g., col. 10, lns. 38-40, whereby the digital signal switches the Q factor that is a part of the analog circuit.</p> <p>Schuermann '774 discloses a digital state machine coupled to the analog circuit for the purpose of executing commands received from the interrogator. E.g., col. 11, lns. 7-17, 23-38.</p> <p>Snodgrass '551 specifies a system in which the transponder utilizes a digital state machine to execute at least one command in accordance with state information. E.g., col. 24, lns. 16-18.</p>
<p>[d] means for storing and retrieving digital data responsive to said at least one command;</p>	<p>This is inherent in RFID systems with writeable transponder memory cells.</p> <p>Carroll '427 discloses use of a memory for storing and retrieving digital data. E.g., "Preferably, an EEPROM (Erasable Electrical Programmable Read Only Memory) device could be used." Col. 9, lns. 50-52.</p> <p>Huber '315 discloses means to store information from the transponder which can be a command to a PHOSITA. E.g., "...means are provided to demodulate from the RF carrier wave data which may be stored in the responder unit memory." Col. 2, lns. 8-10.</p> <p>Schuermann '112 discloses the use of an EEPROM memory and a latch to maintain state information following the lapse of the interrogating RF signal. E.g., col. 7, ln. 68-col. 8, ln. 7.</p> <p>Schuermann '774 discloses the use of RAM memory, which is capable of maintaining state information for a period of time following the lapse of the interrogating RF signal. E.g., col. 11 lns. 33-38. It is inherent in the description of such memory in</p>

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	<p>the patent that it could include RAM, ROM, EEPROM, or any other form of memory.</p> <p>Snodgrass '551 discloses the use of battery-powered memory able to maintain digital state information during a loss of power from the interrogating RF signal. E.g., col. 7 lns. 28-36. A PHOSITA would expect such memory to be either RAM, an SRAM, or an EEPROM.</p>
<p>[e] means for providing electrical power for said RFID transponder derived from said interrogating RF signal;</p>	<p>Passive RFID tags derive a voltage rectified from the interrogating RF signal to power the chip circuitry. "Passive transponders, <i>i.e.</i> transponders that do not have their own power supply, are supplied with energy via the HF [or UHF] field of the reader. To achieve this, the HF [or UHF] interface draws current from the transponder antenna, which is rectified and supplied to the chip as a regulated voltage supply." Klaus Finkenzeller, <i>The RFID Handbook</i>, at p. 172 (1999).</p> <p>Carroll '427 discloses a circuit that accumulates the rectified voltage from the interrogating RF signal. E.g., col. 7, ln. 63-col. 8, ln. 27.</p> <p>Huber '315 discloses "an energy accumulator for storing the energy contained in said interrogation signal received by said responder unit by which the components of said responder unit may be supplied with energy," Col. 15, lns. 14-17.</p> <p>Schuermann '112 discloses a transponder utilizing an electrical power derived from the interrogating RF signal and stored for powering the circuit "wherein said energy storage device is a storage capacitor." Col. 8, lns. 51-52.</p> <p>Schuermann '774 discloses a responder unit with: "...an energy accumulator for storing the energy contained in said at least one interrogation signal as received by said responder unit," Col. 13, lns. 28-30, Claim 1.</p>
<p>[f] and means for maintaining said state information during a temporary lapse in receipt of said interrogating RF signal.</p>	<p>Carroll '427 discloses an EEPROM memory that maintains the state information when the interrogating RF signal lapses. It specifies "an EEPROM (Erasable Electrical Programmable Read Only Memory) device." Col. 9, lns. 51-52.</p> <p>Huber '315 discloses the use of an energy accumulator which powers the transponder, including its memory circuit that</p>

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	<p>maintains state information, after current is no longer received from the interrogating RF signal. E.g., col. 15, lns. 14-17.</p> <p>Schuermann '112 discloses the use of an EEPROM memory, SRAMs, and latches to maintain state information following the lapse the interrogating RF signal. E.g., Col. 7, ln. 68-col. 8, ln. 7.</p> <p>Schuermann '774 discloses the use of RAM memory, which is capable of maintaining state information for a period of time following the lapse of the interrogating RF signal. E.g., col. 11 lns. 33-38. Such memory would inherently include RAM, ROM, EEPROM, or any other basic form of memory that is maintained for a specific duration following lapse of power.</p> <p>Snodgrass '551 discloses the use of battery-powered memory able to maintain digital state information during a loss of power from the interrogating RF signal. E.g., col. 7 lns. 28-36. A PHOSITA would expect such memory to be either RAM, SRAM or an EEPROM.</p> <p>Stewart '155 discloses the use of tenacious latches for tag or command states to persist even through short interruptions of the power supply. E.g., col. 2, lns. 9-11; col. 5, lns. 8-11. Stewart '155 further discloses tag power supplied by the receipt of an interrogating RF signal, which may be interrupted. E.g., col.1, lns. 26-41; col. 2, lns. 31-34.</p>
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Alien further contends that claim 9, and each claim that depends therefrom, is indefinite under 35 U.S.C. § 112(2), and that it is not supported by an enabling written description (i.e., the written description is inadequate) under 35 U.S.C. § 112(1), due to the phrase "a temporary lapse in receipt of said interrogating RF signal."

Claim 10

Alien contends that claim 10 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart for claim 9 and the chart below. Thus, claim 10 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart below, claim 10 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

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With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 10.

<u>Claim Element</u>	<u>Prior Art</u>
10. The RFID transponder of claim 9, wherein said receiving means further comprises an RF front end.	<p>Carroll '427 discloses an RF front end to receive an interrogating RF signal. E.g., col. 11, lns. 33-48.</p> <p>Huber '315 discloses an RF front end to receive an interrogating RF signal. E.g., col. 14, lns. 26-29.</p> <p>Schuermann '112 discloses an RF front end to receive an interrogating RF signal. E.g., col. 8, lns. 26-45.</p> <p>Schuermann '774 discloses an RF front end that receives an interrogating RF signal. E.g., claim 1, col. 13 lns. 19-24.</p> <p>Snodgrass '551 discloses a transponder with an RF front end to receive an interrogating RF signal. E.g., Abstract; col. 10, lns. 23-24.</p> <p>Stewart '155 discloses an RFID tag that receives an interrogating RF signal. E.g., col. 1, lns. 16-29.</p>

Claim 11

Alien contends that claim 11 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart for claim 9 and the chart below. Thus, claim 11 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart below, claim 11 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 11.

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<u>Claim Element</u>	<u>Prior Art</u>
11. The RFID transponder of claim 9, wherein said recovering means further comprises an analog circuit.	<p>This circuitry is well known to anyone skilled in the art. In virtually all passive RFID systems, the RF waves are received by the tag antenna through an analog circuit and are demodulated into the incoming RF information. E.g., "The modulated HF [or UHF] signal from the reader is reconstructed in the HF [or UHF] interface by demodulation to create a digital serial data stream for reprocessing in the address and security logic." Klaus Finkenzeller, <i>The RFID Handbook</i>, at p. 172 (1999).</p> <p>Carroll '427 discloses an analog circuit coupled to an RF front end to recover signals. E.g., col. 11, lns. 49-52.</p> <p>Huber '315 discloses an analog circuit coupled to an RF front end to recover signals. E.g., col. 15, lns. 12-13.</p> <p>Schuermann '112 discloses an analog circuit coupled to the RF front end to recover signals. E.g., col. 5, lns. 23-25.</p> <p>Schuermann '774 discloses an analog circuit coupled to the RF front end to recover signals. E.g., fig. 2.</p> <p>Snodgrass '551 discloses an analog circuit that recovers signals from the RF front end. E.g., col. 9, lns. 1-20.</p> <p>Stewart '155 discloses wireless RF tags that are interrogated by sending information from reader. E.g., col. 1, lns. 17-49.</p>

Claim 12

Alien contends that claim 12 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart for claim 9 and the chart below. Thus, claim 12 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart below, claim 12 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 12.

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<u>Claim Element</u>	<u>Prior Art</u>
12. The RFID transponder of claim 9, wherein said executing means further comprises a digital state machine.	<p>A digital state machine coupled to the analog RF front end is inherent in passive RFID tags with memory functions.</p> <p>"Transponders with a memory function contain RAM, ROM, EEPROM, or FRAM and a HF [or UHF] interface to provide the power supply and permit communication with the reader. The main characteristic of this family of transponders is the realisation of address and security logic on a chip using a state machine." Klaus Finkenzeller, <i>The RFID Handbook</i>, at p. 172 (1999).</p> <p>Carroll '427 discloses a state machine in digital form to execute at least one command. E.g., col. 12, lns. 13-16.</p> <p>Huber '315 discloses a digital state machine for executing commands in accordance with the state information received. E.g., "...and thereupon activates the programming logic 232 if a programming command has been previously received by command decoder 230." Col. 9, lns. 21-23.</p> <p>Schuermann '112 discloses such a digital state machine coupled to an analog circuit. E.g., col. 10, lns. 38-40, whereby the digital signal switches the Q factor that is a part of the analog circuit.</p> <p>Schuermann '774 discloses a digital state machine coupled to the analog circuit for the purpose of executing commands received from the interrogator. E.g., col. 11, lns. 7-17, 23-38.</p> <p>Snodgrass '551 specifies a system in which the transponder utilizes a digital state machine to execute at least one command in accordance with state information. E.g., col. 24, lns. 16-18.</p>

Claim 13

Alien contends that claim 13 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart for claims 9, 12 and the chart below. Thus, claim 13 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart for claims 9, 12 and the chart below, claim 13 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or

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Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 13.

<u>Claim Element</u>	<u>Prior Art</u>
13. The RFID transponder of claim 12, wherein said state information defines plural operating states of said digital state machine.	<p>The capacity for plural operating states is inherent in a digital state machine. E.g., "A state machine ... is an arrangement used for executing logic operations, which also has the capability of storing variable states." Klaus Finkenzeller, <i>The RFID Handbook</i>, at p. 174 (1999) (discussing basic RFID transponder with memory function).</p> <p>Carroll '724 discloses a digital state machine that can be defined into plural operating states. E.g., fig. 9.</p> <p>Huber '315 discloses multiple operating states. It states that "...the transponder is correctly initiated during the next charge phase and does not rest in a undefined or incorrect state such that a subsequent charge-up could be blocked. Additionally by this function, each transponder 12 within the field of the interrogator 10 has an identical start condition." Col. 8, lns. 17-22.</p> <p>Schuermann '112 discloses an RFID transponder that has plural operating states defined by state information. E.g., col. 9, lns. 9-34.</p> <p>Schuermann '774 discloses a digital state machine coupled to the analog circuit for the purpose of executing commands received from the interrogator, thereby permitting a plurality of states. E.g., col. 11, lns. 7-17, 23-38.</p> <p>Snodgrass '551 discloses state information utilized to define multiple states of the transponder. E.g., "The output of state register 50 is a state signal 52, which forms control bus 54." Col. 6, lns. 40-42.</p>

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Claim 14

Alien contends that claim 14 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart for claim 9 and the chart below. Thus, claim 14 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart for claim 9 and the chart below, claim 14 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 14.

<u>Claim Element</u>	<u>Prior Art</u>
14. The RFID transponder of claim 9, wherein said storing and retrieving means further comprises a memory device.	<p>Carroll '427 discloses a cell that maintains its state information during a loss of power from the interrogating RF signal. E.g., "preferably, an EEPROM (Erasable Electrical Programmable Read Only Memory) device could be used." Col. 9, lns. 50-52.</p> <p>Huber '315 discloses a EEPROM memory. "Preferably, the memory the to which the data is transferred is an electrically-erasable programmable read only memory (EEPROM)." Col. 9, lns. 25-28.</p> <p>Schuermann '112 discloses the use of an EEPROM memory, SRAMs, and latches to maintain state information following the lapse the interrogating RF signal. E.g., Col. 7, ln. 68-col. 8, ln. 7.</p> <p>Schuermann '774 discloses the use of RAM memory, which is capable of maintaining state information for a period of time following the lapse of the interrogating RF signal. E.g., col. 11, lns. 33-38. Such memory would inherently include RAM, ROM, EEPROM, or any other basic form of memory that is maintained for a specific duration following lapse of power.</p> <p>Snodgrass '551 discloses the use of battery-powered memory able to maintain digital state information during a loss of power from the interrogating RF signal. E.g., col. 7, lns. 28-36. A PHOSITA would expect such memory to be either RAM, an</p>

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	SRAM, or an EEPROM.
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Claim 15

Alien contends that claim 15 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity charts for claims 9, 14 and the chart below. Thus, claim 15 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity charts for claims 9, 14, and the chart below, claim 15 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 15.

<u>Claim Element</u>	<u>Prior Art</u>
15. The RFID transponder of claim 14, wherein said memory device further comprises an EEPROM device.	<p>An EEPROM is a common memory device using a very well-known technology.</p> <p>Carroll '427 discloses a cell that maintains its state during a loss of power. E.g., "Preferably, an EEPROM (Erasable Electrical Programmable Read Only Memory) device could be used." Col. 9, lns. 50-52.</p> <p>Huber '315 discloses a EEPROM memory. "Preferably, the memory the to which the data is transferred is an electrically-erasable programmable read only memory (EEPROM)." Col. 9, lns. 25-28.</p> <p>Schuermann '112 discloses EEPROM memory to hold state information. E.g., col. 7, ln. 68-col. 8, ln. 7.</p> <p>Schuermann '774 discloses the use of RAM memory, which is capable of maintaining state information for a period of time following the lapse of the interrogating RF signal. E.g., col. 11, lns. 33-38. Such memory would inherently include RAM, ROM, EEPROM, or any other basic form of memory that is maintained for a specific duration following lapse of power.</p>

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	Snodgrass '551 discloses the use of battery-powered memory able to maintain digital state information during a loss of power from the interrogating RF signal. E.g., col. 7, lns. 28-36. A PHOSITA would inherently expect such memory to be either RAM or an EEPROM.
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Claim 16

Alien contends that claim 16 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart for claim 9 and the chart below. Thus, claim 16 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart for claim 9 and the chart below, claim 16 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 16.

<u>Claim Element</u>	<u>Prior Art</u>
16. The RFID transponder of claim 9, wherein said maintaining means further comprises an OR gate having a first input terminal operatively coupled to receive a voltage corresponding to said state information, a second input terminal coupled to a capacitor, and an output terminal providing said state information, said capacitor being charged by said voltage.	<p>A state holding cell is a memory cell. The specific memory cell claimed here is a simple version of the classical dynamic memory circuit (DRAM), which has been very well known in the art for decades. See, e.g., Sung-Mo Kang, Yusuf Leblebici, <i>CMOS Digital Integrated Circuits, Analysis and Design</i>, at 442-43 (1999); Haldun Haznedar, <i>Digital Microelectronics</i>, at 444-46 (1991); P. K. Chatterjee, et al., "A Survey of High-Density Dynamic RAM Cell Concepts," ED-26 IEEE TRANSACTIONS ON ELECTRON DEVICES 827-839 (June 1979) as shown in Figure 10.44.a in Kang/Leblebici and Haznedar.</p> <p>The claimed circuit is a simplified DRAM in that only one memory bit is stored. Thus, the R/W Select line can be tied to a permanent ON state or the transistor can be replaced by a diode as it is in 841 where the POWER SIGNAL is equivalent to the Data In/Out (D) signal of the DRAM.</p> <p>The use of this rudimentary memory cell would have been inherent in and obvious from any RFID tag system that utilizes</p>

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	addressable digital memory, including Carroll '427, Huber '315, Schuermann '774, Schuermann '112, and Snodgrass '551.
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Claim 17

Alien contends that claim 17 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity charts for claims 9, 16 and the chart below. Thus, claim 17 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity charts for claims 9, 16, and the chart below, claim 17 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 17.

<u>Claim Element</u>	<u>Prior Art</u>
17. The RFID transponder of claim 16, further comprising a diode coupled between said first input terminal and said input terminal of said OR gate.	<p>As explained above with respect to claim 16, the claimed circuit is a simplified version of a classical DRAM memory cell, in which case the R/W Select can be permanently tied to a potential to cause the transistor to conduct. Because no switching action is needed, a diode simply replaces the transistor of the classical DRAM cell.</p> <p>The use of this rudimentary memory cell would have been inherent in and obvious from any RFID tag system that utilizes addressable digital memory, including Carroll '427, Huber '315, Schuermann '774, Schuermann '112, and Snodgrass '551.</p>

Claim 18

Alien contends that claim 18 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity charts for claims 9, 16, 17 and the chart below. Thus, claim 18 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity charts for claims 9, 16, 17, and the chart below, claim 18 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315,

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'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1 and claim 4. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 18.

<u>Claim Element</u>	<u>Prior Art</u>
18. The RFID transponder of claim 17, wherein said diode further comprises a Schottky diode.	It is common knowledge to a PHOSITA that a Schottky diode has less noise and a low turn on voltage making said diode the most logical choice for the diode to be used with the state holding cell. "Such metal-semiconductor diodes, called Schottky diodes, ... have advantages with respect to speed of operation." [Digital Integrated Electronics, Herbert Taub and Donald Schilling, McGraw-Hill, New York, 1977, p.46] A PHOSITA would have understood the reference to diodes in claim 17 to inherently encompass Schottky diodes. Use of such diodes would have been inherent in and obvious from any RFID tag system that utilizes addressable digital memory, including Carroll '427, Huber '315, Schuermann '774, Schuermann '112, and Snodgrass '551.

Claim 19

Alien contends that claim 19 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity charts for claims 9, 16, 17 and the chart below. Thus, claim 19 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity charts for claims 9, 16, 17, and the chart below, claim 19 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1 and claim 5. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 18.

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<u>Claim Element</u>	<u>Prior Art</u>
19. The RFID transponder of claim 17, wherein said diode further comprises a p-n junction diode.	A Schottky diode may have disadvantages in certain fabrication processes, whereby it would be obvious to a PHOSITA that a p-n junction diode, the most basic alternative type of diode, would also work in the holding cell circuit. [Electrical and Electronic Devices, Circuits, and Instruments, Thomas A. DeMassa, West Publishing, 1989, p. 52. A PHOSITA would have understood the reference to diodes in claim 17 to inherently encompass p-n diodes. Use of such diodes would have been inherent in and obvious from any RFID tag system that utilizes addressable digital memory, including Carroll '427, Huber '315, Schuermann '774, Schuermann '112, and Snodgrass '551.

Claim 20

Alien contends that claim 20 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity charts for claims 9, 16 and the chart below. Thus, claim 20 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity charts for claims 9, 16, and the chart below, claim 20 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 20.

<u>Claim Element</u>	<u>Prior Art</u>
20. The RFID transponder of claim 16, further comprising a latch coupled between said first input terminal and said output terminal of said OR gate, said latch being operative to restore said voltage corresponding to said state information to said first input terminal following	The use of a latch would be common knowledge and obvious to a PHOSITA. It is a very well-known method for holding a signal state in an event such as a temporary loss of power. E.g., "... a latch must be used to grab the addresses.", Assembly Language, Design and Interfacing, Muhammad Ali Mazidi and Janice Gillispie Mazidi, Prentice Hall, Upper Saddle River, 1998, p. 238. A latch is the most basic circuit element for maintaining a signal state through a prolonged loss in power supply, and would be the first option for a PHOSITA seeking to accomplish that aim.

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said temporary lapse in receipt of said interrogating RF signal.	<p>Schuermann '112 discloses the use of an EEPROM memory, SRAMs, and latches to maintain state information following the lapse the interrogating RF signal. E.g., Col. 7, ln. 68-col. 8, ln. 7.</p> <p>Stewart '155 discloses the use of tenacious latches for tag or command states to persist even through short interruptions of the power supply. E.g., col. 2, lns. 9-11; col. 5, lns. 8-11. Stewart '155 further discloses tag power supplied by the receipt of an interrogating RF signal, which may be interrupted. E.g., col.1, lns. 26-41; col. 2, lns. 31-34.</p> <p>Use of such a latch would have been inherent in and obvious from any RFID tag system that utilizes addressable digital memory, including Carroll '427, Huber '315, Schuermann '774, Schuermann '112, and Snodgrass '551.</p>
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Alien further contends that claim 6 is not supported by an enabling written description (i.e., the written description is inadequate) under 35 U.S.C. § 112(1), due to the lack of specificity in the patent's description of the latch circuitry. *See* Figure 3.

Claim 21

Alien contends that claim 21 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart below. Thus, claim 21 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart below, claim 21 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 21.

<u>Claim Element</u>	<u>Prior Art</u>
21. A method for operating an RFID transponder, comprising the steps of:	Preamble descriptive of use without adding any structure or substance to claim, and thus non-limiting. To extent this preamble description is required to be found in the prior art, it is found in each of the references identified above.
[a] receiving an	Carroll '427 discloses an RF front end to receive an

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interrogating RF signal;	<p>interrogating RF signal. E.g., col. 11, lns. 33-48.</p> <p>Huber '315 discloses an RF front end to receive an interrogating RF signal. E.g., col. 14, lns. 26-29.</p> <p>Schuermann '112 discloses an RF front end to receive an interrogating RF signal. E.g., col. 8, lns. 26-45.</p> <p>Schuermann '774 discloses an RF front end that receives an interrogating RF signal. E.g., claim 1, col. 13 lns. 19-24.</p> <p>Snodgrass '551 discloses a transponder with an RF front end to receive an interrogating RF signal. E.g., Abstract; col. 10, lns. 23-24.</p> <p>Stewart '155 discloses an RFID tag that receives an interrogating RF signal. E.g., col. 1, lns. 16-29.</p>
[b] recovering analog signals from said received interrogating RF signal and providing state information defining a desired state of said RFID transponder corresponding to said analog signals;	<p>This circuitry is well known to anyone skilled in the art. In virtually all passive RFID systems, the RF waves are received by the tag antenna through an analog circuit and are demodulated into the incoming RF information. E.g., "The modulated HF [or UHF] signal from the reader is reconstructed in the HF [or UHF] interface by demodulation to create a digital serial data stream for reprocessing in the address and security logic." Klaus Finkenzeller, <i>The RFID Handbook</i>, at p. 172 (1999).</p> <p>Carroll '427 discloses an analog circuit providing information corresponding to the analog signals. E.g., col. 11, lns. 41-45.</p> <p>Huber '315 discloses an analog circuit providing information corresponding to the analog signals. E.g., col. 15, lns. 18-21.</p> <p>Schuermann '112 discloses an analog circuit providing information corresponding to the analog signals. E.g., col. 5, lns. 43-46.</p> <p>Schuermann '774 discloses an analog circuit coupled to the RF front end to recover signals. E.g., fig. 2.</p> <p>Snodgrass '551 discloses an analog circuit that recovers signals from the RF front end. E.g., col. 9, lns. 1-20.</p>

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	<p>Stewart '155 discloses wireless RF tags that are interrogated by sending information from reader. E.g., col. 1, lns. 17-49.</p>
<p>[c] executing at least one command in accordance with said state information;</p>	<p>A digital state machine coupled to the analog RF front end is inherent in passive RFID tags with memory functions. "Transponders with a memory function contain RAM, ROM, EEPROM, or FRAM and a HF [or UHF] interface to provide the power supply and permit communication with the reader. The main characteristic of this family of transponders is the realisation of address and security logic on a chip using a state machine." Klaus Finkenzeller, <i>The RFID Handbook</i>, at p. 172 (1999).</p> <p>Carroll '427 discloses a state machine in digital form to execute at least one command. E.g., col. 12, lns. 13-16.</p> <p>Huber '315 discloses a digital state machine for executing commands in accordance with the state information received. E.g., "...and thereupon activates the programming logic 232 if a programming command has been previously received by command decoder 230." Col. 9, lns. 21-23.</p> <p>Schuermann '112 discloses such a digital state machine coupled to an analog circuit. E.g., col. 10, lns. 38-40, whereby the digital signal switches the Q factor that is a part of the analog circuit.</p> <p>Schuermann '774 discloses a digital state machine coupled to the analog circuit for the purpose of executing commands received from the interrogator. E.g., col. 11, lns. 7-17, 23-38.</p> <p>Snodgrass '551 specifies a system in which the transponder utilizes a digital state machine to execute at least one command in accordance with state information. E.g., col. 24, lns. 16-18.</p>
<p>[d] storing and retrieving digital data responsive to said at least one command;</p>	<p>This is inherent in RFID systems with writeable transponder memory cells.</p> <p>Carroll '427 discloses use of a memory for storing and retrieving digital data. E.g., "Preferably, an EEPROM (Erasable Electrical Programmable Read Only Memory) device could be</p>

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	<p>used.” Col. 9, lns. 50-52.</p> <p>Huber '315 discloses means to store information from the transponder which can be a command to a PHOSITA. E.g., “...means are provided to demodulate from the RF carrier wave data which may be stored in the responder unit memory.” Col. 2, lns. 8-10.</p> <p>Schuermann '112 discloses the use of an EEPROM memory, SRAMs, and latches to maintain state information following the lapse the interrogating RF signal. E.g., Col. 7, ln. 68-col. 8, ln. 7.</p> <p>Schuermann '774 discloses the use of RAM memory, which is capable of maintaining state information for a period of time following the lapse of the interrogating RF signal. E.g., col. 11 lns. 33-38. It is inherent in the description of such memory in the patent that it could include RAM, ROM, EEPROM, or any other form of memory.</p> <p>Snodgrass '551 discloses the use of battery-powered memory able to maintain digital state information during a loss of power from the interrogating RF signal. E.g., col. 7 lns. 28-36. A PHOSITA would expect such memory to be either RAM or an EEPROM.</p>
<p>[e] providing electrical power for said RFID transponder derived from said interrogating RF signal;</p>	<p>Passive RFID tags derive a voltage rectified from the interrogating RF signal to power the chip circuitry. “Passive transponders, <i>i.e.</i> transponders that do not have their own power supply, are supplied with energy via the HF [or UHF] field of the reader. To achieve this, the HF [or UHF] interface draws current from the transponder antenna, which is rectified and supplied to the chip as a regulated voltage supply.” Klaus Finkenzeller, <i>The RFID Handbook</i>, at p. 172 (1999).</p> <p>Carroll '427 discloses a circuit that accumulates the rectified voltage from the interrogating RF signal. E.g., col. 7, ln. 63-col. 8, ln. 27.</p> <p>Huber '315 discloses “an energy accumulator for storing the energy contained in said interrogation signal received by said responder unit by which the components of said responder unit may be supplied with energy,” Col. 15, lns. 14-17.</p>

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	<p>Schuermann '112 discloses a transponder utilizing an electrical power derived from the interrogating RF signal and stored for powering the circuit "wherein said energy storage device is a storage capacitor." Col. 8, lns. 51-52.</p> <p>Schuermann '774 discloses a responder unit with: "...an energy accumulator for storing the energy contained in said at least one interrogation signal as received by said responder unit," Col. 13, lns. 28-30, Claim 1.</p>
[f] and maintaining said state information during a temporary lapse in receipt of said interrogating RF signal.	<p>Carroll '427 discloses an EEPROM memory that maintains the state information when the interrogating RF signal lapses. It specifies "an EEPROM (Erasable Electrical Programmable Read Only Memory) device." Col. 9, lns. 51-52.</p> <p>Huber '315 discloses the use of an energy accumulator which powers the transponder, including its memory circuit that maintains state information, after current is no longer received from the interrogating RF signal. E.g., col. 15, lns. 14-17.</p> <p>Schuermann '112 discloses the use of an EEPROM memory, SRAMs, and latches to maintain state information following the lapse the interrogating RF signal. E.g., Col. 7, ln. 68-col. 8, ln. 7.</p> <p>Schuermann '774 discloses the use of RAM memory, which is capable of maintaining state information for a period of time following the lapse of the interrogating RF signal. E.g., col. 11 lns. 33-38. Such memory would inherently include RAM, ROM, EEPROM, or any other basic form of memory that is maintained for a specific duration following lapse of power.</p> <p>Snodgrass '551 discloses the use of battery-powered memory able to maintain digital state information during a loss of power from the interrogating RF signal. E.g., col. 7 lns. 28-36. A PHOSITA would expect such memory to be RAM, an SRAM, or an EEPROM.</p> <p>Stewart '155 discloses the use of tenacious latches for tag or command states to persist even through short interruptions of the power supply. E.g., col. 2, lns. 9-11; col. 5, lns. 8-11. Stewart '155 further discloses tag power supplied by the receipt of an interrogating RF signal, which may be interrupted. E.g., col.1, lns. 26-41; col. 2, lns. 31-34.</p>

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Alien further contends that claim 21, and each claim that depends therefrom, is indefinite under 35 U.S.C. § 112(2), and not supported by the written description (i.e., the written description is inadequate) and not enabled under 35 U.S.C. § 112(1), due to the phrase "a temporary lapse in receipt of said interrogating RF signal."

Claim 22

Alien contends that claim 22 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity chart for claim 21 and the claim chart below. Thus, claim 22 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity chart for claim 21 and the claim chart below, claim 22 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 2. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 22.

<u>Claim Element</u>	<u>Prior Art</u>
22. The method of claim 21 , wherein said maintaining step further comprises receiving a voltage corresponding to said state information, and charging a capacitor by said voltage.	<p>Almost all memory circuits, such as DRAMs, utilize stored voltage differentials to record data bits. In all passive RFID systems, the voltage from the interrogating signal is used to charge the system, including its memory cells. "Passive transponders, <i>i.e.</i> transponders that do not have their own power supply, are supplied with energy via the HF [or UHF] field of the reader. To achieve this, the HF [or UHF] interface draws current from the transponder antenna, which is rectified and supplied to the chip as a regulated voltage supply." Klaus Finkenzeller, <i>The RFID Handbook</i>, at p. 172 (1999).</p> <p>Carroll '427 discloses a circuit with inherent capacitance that accumulates the rectified voltage from the interrogating RF signal. E.g., col. 7, ln. 63-col. 8, ln. 27.</p> <p>Huber '315 discloses an energy accumulator for storing voltage derived from the interrogating RF signal. E.g., col. 15, lns. 14-17. It specifies a capacitor charged by the rectified voltage, which is the most fundamental and obvious type of such voltage</p>

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	<p>accumulator circuit. E.g., col. 6, lns. 6-12.</p> <p>Schuermann '112 discloses a power capacitor coupled to the RF front end and deriving a voltage rectified from the interrogating RF signal. E.g., "wherein said energy storage device is a storage capacitor." Col. 8, lns. 51-52.</p> <p>Schuermann '774 discloses an energy accumulator coupled to the RF front end and deriving a voltage rectified from the interrogating RF signal. E.g., col. 13, lns. 28-30, Claim 1. A capacitor is a fundamental type of such energy accumulator.</p>
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Claim 23

Alien contends that claim 23 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity charts for claims 21, 22 and the claim chart below. Thus, claim 23 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity charts for claims 21, 22 and the claim chart below, claim 23 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 23.

<u>Claim Element</u>	<u>Prior Art</u>
<p>23. The method of claim 22, further comprising the step of preventing discharge of said capacitor during said temporary lapse in receipt of said interrogating RF signal.</p>	<p>Avoiding premature discharge of the capacitors is a fundamental requirement of memory designs that utilize capacitors, which are common. "The use of capacitors as storage cells in DRAM results in a much smaller net memory cell size." Assembly Language, Design and Interfacing, Muhammad Ali Mazidi and Janice Gillispie Mazidi, Prentice Hall, Upper Saddle River, 1998, p. 238. By definition, a capacitor will hold charge during a temporary lapse of received voltage.</p> <p>Carroll '427 discloses a circuit with inherent capacitance that accumulates the rectified voltage from the interrogating RF signal. E.g., col. 7, ln. 63-col. 8, ln. 27.</p>

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	<p>Huber '315 discloses an energy accumulator for storing voltage derived from the interrogating RF signal. It specifies a capacitor charged by the rectified voltage, which is the most fundamental and obvious type of such voltage accumulator circuit. E.g., col. 6, lns. 6-12.</p> <p>Schuermann '112 discloses a power capacitor coupled to the RF front end and deriving a voltage rectified from the interrogating RF signal. E.g., "wherein said energy storage device is a storage capacitor." Col. 8, lns. 51-52.</p> <p>Schuermann '774 discloses an energy accumulator coupled to the RF front end and deriving a voltage rectified from the interrogating RF signal. E.g., "...an energy accumulator for storing the energy contained in said at least one interrogation signal as received by said responder unit." Col. 13, lns. 28-30, Claim 1. A capacitor is the most fundamental type of such energy accumulator.</p>
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Alien further contends that claim 23 is indefinite under 35 U.S.C. § 112(2), and not supported by the written description (i.e., the written description is inadequate) and not enabled under 35 U.S.C. § 112(1), due to the phrase "preventing discharge of said capacitor during said temporary lapse in receipt of said interrogating RF signal."

Claim 24

Alien contends that claim 24 of the '841 patent is invalid on grounds of anticipation and/or obviousness. Each and every element of the claim can be found in at least Carroll '427, Huber '315, Schuermann '112, and Schuermann '774, as shown in the invalidity charts for claims 21, 22 and the claim chart below. Thus, claim 24 is invalid under 35 U.S.C. § 102(b). Furthermore, as also shown in the invalidity charts for claims 21, 22 and the claim chart below, claim 24 is invalid under 35 U.S.C. § 103(a) as being obvious over (i) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774, alone or in combination; and/or (ii) Carroll '427, Huber '315, 'Schuermann '112 and/or Schuermann '774 in combination with Snodgrass '551 and/or Stewart '155.

With regard to the various combinations of references that may be relied upon to show obviousness, Alien refers to its statements about motivation to combine set forth in connection with claim 1. Those same factors would have motivated a PHOSITA to make combinations of or variations on the cited prior art so as to arrive at claim 24.

<u>Claim Element</u>	<u>Prior Art</u>
24. The method of claim	By definition, the function of a single cell DRAM is to hold a

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<p>22, further comprising the step of restoring said voltage corresponding to said state information following said temporary lapse in receipt of said interrogating RF signal.</p>	<p>memory variable when the writing signal is removed. "The disadvantage is that it [DRAM cell] must be refreshed periodically, due to the fact that the capacitor cell loses its charge." Assembly Language, Design and Interfacing, Muhammad Ali Mazidi and Janice Gillispie Mazidi, Prentice Hall, Upper Saddle River, 1998, p. 238. The rewrite of the DRAM input simply restores the cell described in this claim. In this application, the loss of power (signal) is assumed to be short lived in which case the POWER signal is simply the rewrite signal.</p> <p>The step would thus have been inherent in and obvious from any RFID tag system that utilizes addressable digital memory, including Carroll '427, Huber '315, Schuermann '774, Schuermann '112, and Snodgrass '551.</p>
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